

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
1 July 2004 (01.07.2004)

PCT

(10) International Publication Number  
**WO 2004/055442 A3**

(51) International Patent Classification<sup>7</sup>: F24F 1/02, 13/22

(21) International Application Number:  
PCT/KR2002/002385

(22) International Filing Date:  
18 December 2002 (18.12.2002)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): LG  
ELECTRONICS INC. [KR/KR]; 20, Yoido-Dong, Yong-  
dungpo-Gu, 150-010 Seoul (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): CHOI,  
Dae-Hwan [KR/KR]; Hwamyeongjugong Apt. 37-210,  
Hwamyeong-Dong, Buk-Gu, 616-783 Busan (KR).  
LEE, Kyungsoo [KR/KR]; 705-17, Sujeong 3-Dong,  
Dong-Gu, 601-817 Busan (KR). EOM, Yoon-Seob  
[KR/KR]; Woosong Apt. 101-1006, Namyang-Dong,  
641-091 Changwon, Gyeongsangnam-Do (KR). KOO,

Jeong-Hwan [KR/KR]; 1346-22, 18/4, Daeyeon 5-Dong,  
Nam-Gu, 608-808 Busan (KR). RYU, Jun-Sang [KR/KR];  
Hanil Apt. 505-1101, Juyeop 2-Dong, Ilsan-Gu, 411-372  
Goyang, Gyeonggi-Do (KR).

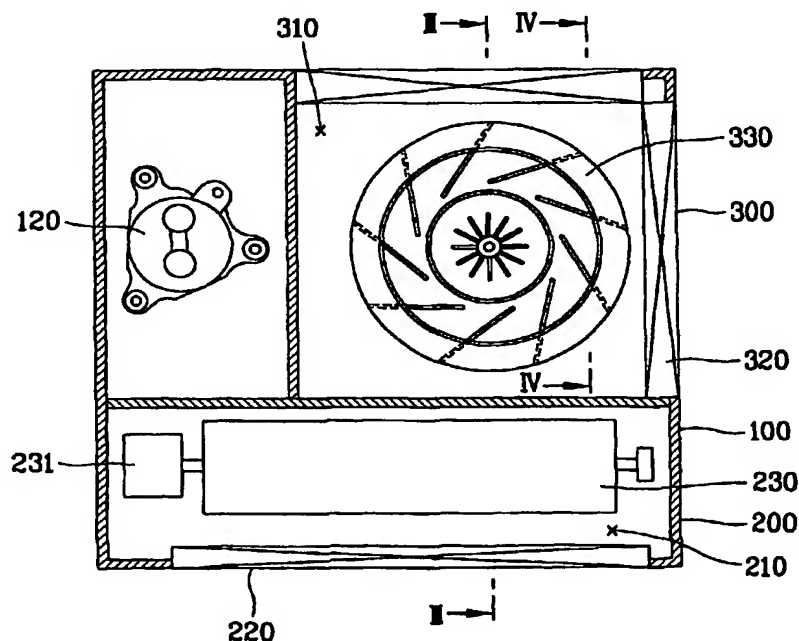
(74) Agent: PARK, Jang-Won; Jewoo Bldg. 5th Floor 200,  
Nonhyun-Dong, Gangnam-Ku, 135-010 Seoul (KR).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,  
SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,  
VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK,  
TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: AIR CONDITIONER



(57) Abstract: In an air conditioner, the air conditioner includes a casing (100) having an indoor space region (210) and an outdoor space region (310); an indoor unit (200) installed in the indoor space region, sucking air and cooling the sucked air through a first heat exchanger (220); an outdoor unit (300) installed in the outdoor space region, sucking air and releasing heat of the air to the outside through a second heat exchanger (320); and a turbo fan (330) installed in the outdoor space region for generating air flows so as to flow air to the second heat exchanger.



**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**(88) Date of publication of the international search report:**

3 March 2005

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR 2002/002385

## CLASSIFICATION OF SUBJECT MATTER

IPC<sup>7</sup>: F24F 1/02, 13/22

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC<sup>7</sup>: F24F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EpoDoc, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 392 613 A; (BOLTON); 28 February 1995 (28.02.1995) <i>the whole document, particular figures 4, 41-43.</i>	1-9
X	US 2 776 554 A; (PIGMAN); 8 January 1957 (08.01.1957) <i>the whole document, particular figures 2, 4.</i>	1, 2
A		3-9
A	US 4 382 369 A; (STOCKING); 10 May 1983 (10.05.1983) <i>the whole document</i>	1-9

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

\* Special categories of cited documents:

„A“ document defining the general state of the art which is not considered to be of particular relevance

„E“ earlier application or patent but published on or after the international filing date

„L“ document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

„O“ document referring to an oral disclosure, use, exhibition or other means

„P“ document published prior to the international filing date but later than the priority date claimed

„T“ later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

„X“ document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

„Y“ document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

„&“ document member of the same patent family

Date of the actual completion of the international search

14 December 2004 (14.12.2004)

Date of mailing of the international search report

22 December 2004 (22.12.2004)

Name and mailing address of the ISA/AT

Austrian Patent Office  
Dresdner Straße 87, A-1200 Vienna  
Facsimile No. 1/53424/535

Authorized officer

LOSENICKY G.

Telephone No. 1/53424/372

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR 2002/002385

Patent document cited in search report			Publication date	Patent family member(s)			Publication date
US	A	2776554	1957-01-08			none	
US	A	4382369	1983-05-10	JP	A	58069337	1983-04-25